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Fashion Feasibility Analysis *Ready to Wear* Based QR Codes in Fashion

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Abstract

The development of the fashion industry in the past decade shows that the advancement of digital technology and the intensification of the use of social media have accelerated the spread of fashion trends globally, so that trend cycles are becoming shorter and more responsive to changing consumer tastes. This study aims to analyze the feasibility of ready-to-wear clothing based on embroidery QR Code reviewed from the aspects of design, size, aesthetics, sewing techniques, fashion performance, and product specialties. The research method used was quantitative descriptive with observation sheet instruments. The object of this research consists of a set of apparel, including a crop top shirt with an outer that features an embroidered QR Code on the back and cargo pants. The research instrument was proven to be valid using Aiken's Coefficient V with the validity results of 30 assessment items having a V value ≥ 0.75 . Reliability estimation was conducted using the Interclass Correlation Coefficient (ICC) with an Average Measure value of 0.978, which indicates excellent reliability. The results of the study showed that the feasibility of fashion based on the assessment of 5 expert panelists and 20 trained panelists on six indicators showed a very feasible category with an overall percentage of 93.68%, with the results of each indicator's assessment of 15.22%, size 15.55%, aesthetics 15.85%, sewing technique 15.58%, fashion performance 15.60% and specialties 15.88%.

Keywords: QR Code, ready to wear, fashion

INTRODUCTION

The development of *the fashion industry* in the past decade shows that advances in digital technology and the intensification of the use of social media have accelerated the spread of *fashion* trends globally. *Fashion* is no longer understood as a basic need to protect the body, but has become an essential part of everyday life that serves as a medium of self-expression, a representation of lifestyle, as well as an individual's visual identity¹. Today's young generation expresses a lot of clothing styles through social media, such as *Outfit Of The Day* (OOTD) uploads, engagement with *influencers*, and participation in the digital *fashion* community, so that *fashion* becomes an active and dynamic means of visual communication². This condition gives rise to various forms and categories of fashion in the *fashion industry* that need to be understood through fashion classification.

Along with these developments, the *fashion industry* has experienced grouping into various categories that reflect differences in design approaches, production systems, and market segmentation. The classification of *the fashion industry* consists of several types of clothing, including

¹ Fiona May Leman et al., "28 National Seminar of Vision 2020: Creative Industry Impact of Fast Fashion on the Environment," *Envisi National Seminar 2020 : Creative Industry*, 2020, 130, www.fastcompany.com.

² M. Ramli Rizki Candra Kirana, Sri Astuti, "The Influence of Social Media on Generation Z Consumer Behavior in Purchasing Fashion Products," *Digital Business Insights Journal* 1, no. 1 (2025): 58–67.

*haute couture, custom made, ready to wear, fast fashion, and streetwear*³. *Haute couture* and *custom made* tend to be exclusive and personalized, while *ready-to-wear* emphasizes practicality and accessibility for consumers⁴. *Haute couture* clothing is generally synonymous with aesthetic and exclusivity interests, so its use is limited to certain moments or activities⁵. Meanwhile, *custom made clothing* emphasizes the exploration of details, textures, and personal adjustments according to the character of the orderer. *Ready-to-wear* clothing plays an important role in filling the medium to mass market by offering a balance between production aesthetics⁶.

Ready-to-wear *clothing* is a category of ready-to-wear clothing that is produced based on standard sizes and can be used immediately without the need for re-stitching⁷. The forms of *ready-to-wear products* are very diverse, including blouses, shirts, cardigans, t-shirts, blouses, pants, outerwear, and other ready-to-wear clothing⁸. In terms of *classification*, *ready-to-wear* is divided into several categories, namely *basic ready to wear*, *ready to wear deluxe*, and *ready to wear contemporary*, each of which has different design characteristics and market segmentation⁹. This diversity of forms and segmentation demands a product differentiation strategy that relies not only on functional aspects, but also on visual identity and brand communication¹⁰. In line with this research, *ready-to-wear* fashion continues to develop in terms of design and aesthetics, the use of identity media in *ready-to-wear products* on the market is generally still limited to basic technical information such as brand labels, sizes, and fashion care instructions¹¹. The information functions practically, but it has not been able to convey the design theme, collection name, or philosophy of batik motifs used in fashion design.

Strengthening cultural identity in *ready-to-wear clothing* is generally realized through the form of colors, without the accompanying media that explains the meaning of the design philosophy in writing or digitally within the product itself¹². This condition becomes even more relevant when associated with the characteristics of ready-to-wear products which are generally designed for mass market needs with a *casual* and *modern*¹³ style. *Ready-to-wear products* are generally manifested in the form of *casual* to *streetwear clothing*, such as crop top shirts and cargo pants, which highlight

³ Olivia Bowles and Richard Wilson, "Artificial Intelligence and Trend Forecasting in the Fashion Industry : Ethical and Anticipated Ethical Issues," 2024, 75–81.

⁴ Anakku Saviola, Dava Putratama, and Fery Febriansyah, "Crop Top Dressing Style Among University of Jember Students for Impression Management in a Review of Erving Goffman's Dramaturgy Theory," *Educational Science Innovation* 2, no. 1 (2024).

⁵ Khairun Nisa Mustaffa Halabi Gregory Kiyai, Noor Hafiza Ismail, "The Development and Challenges of Haute Couture in the Fashion Industry," *Journal of Creative Future and Heritage* XII, no. 1 (2024): 80–96.

⁶ Dinar Octa Pratiwi and Sari Yuningsih, "Designing Ready-to-Wear Clothing Using Embroidery Techniques with Inspiration from Spotted Thread Motifs," *Fashion* 4, no. 2 (2022), <https://doi.org/10.37715/moda.v4i2.3161>.

⁷ Subagja Budi and Laksana Faradillah, "Ready-to-wear Fashion Design Using Engineered Print Techniques," *Journal of Fine Arts* 9, no. 3 (2021): 266–74.

⁸ Febbry Dwiyanti Krisnayadi and Pipin Tresna, "The Application of Tweed Materials in the Making of Ready-to-Wear Clothing," *Journal of Fashion Technology and Boga* 9, no. 2 (2021): 112–20.

⁹ Arien Dwi Julieta Sari and Nurul Hidayati, Sri Eko Puji Rahayu, "The Creation of Ready-to-Wear Deluxe Clothing Inspired by Geometry in Mathematics," *Journal of Fashion & Textile Design Unesa* 3, no. 2023 (2024): 181–89.

¹⁰ Syafa Arinda, Evawani Elysa Lubis, and Nita Rimayanti, "Fashion Branding: Product Differentiation Efforts and Unique Selling Point of Bertjorak Brands," *Communication Research* 8, no. 1 (2025): 188–99.

¹¹ Stefani Cinthia Karella et al., "The Creation of Monumental Textiles in Ready-to-Wear Deluxe Clothing with the Idea Source of Jaranan Buto," *Journal of Multidisciplinary Research and Development* 7, no. 3 (2025): 2090–2107.

¹² Farzana Amatul Noor, "Revitalization of Baduy Woven Fabric Through Adibudana: The Role of Innovation in Preserving Cultural Heritage," *Journal of Fashion & Textile Design Unesa* 5 (2024): 41–50.

¹³ Edi Suwasana Dwy Nurcahyati, "Monument Motifs as Ready to Wear Ideas with Polyflex Screen Printing," *Journal of Science and Technology Gastronomy, Cosmetology, and Fashion* 13, no. 2 (2021): 158–69.

practical silhouettes, functional details, and modern aesthetics that are easily accepted by the middle market¹⁴.

The crop top shirt is designed with a modern silhouette that highlights drawn-out sleeves, and is equipped with an outer layer with QR Code embroidery details on the back as a visual accent and innovative identity of fashion. The cargo pants in this study are designed with a utilitarian character through the application of *accordion* pockets on the front, pants to ankle lengths, and the use of detachable straps on *accordion* pockets that allow for the user's flexibility. Visually, this suit carries a modern and *casual* concept that is close to *the streetwear style*, but still elevates batik as a cultural identity through the selection of motifs and design processing that is adaptive to the tastes of the younger generation.

The selection of crop top shirts and cargo pants as the object of research is based on the trend *trend that* shows that the combination of tops and bottoms with practical silhouettes and character is a favorite among young people because it is considered flexible, functional, and relevant¹⁵. Designing *ready-to-wear clothing* in the form of suits or combinations of tops and bottoms allows for the creation of a strong visual unity while making it easier for consumers to mix and match clothing¹⁶. This fashion suit already reflects the visual character, but still needs an identity medium that is able to explain the concept and philosophy of fashion more completely. The position of innovation in this study lies in the application of QR Codes embroidered on the outer back of *ready-to-wear* clothing as an informative and narrative fashion identity. The embroidered QR Code is designed not only as a visual element, but also as a communication medium that is scanned through a device capable of displaying information about the fashion theme, the meaning of fashion naming, the design philosophy, and the philosophy of the batik used. This condition shows that fashion identity is still visual, so media that can connect fashion with digital information about the meaning and philosophy of design directly, one of which is through the use of QR Codes that can be embedded in clothing.

QR Code is a two-dimensional code that functions as a medium for storing and conveying digital information in the form of text and links that can be accessed quickly through the scanning process using a device¹⁷. This technology was developed to connect physical objects with digital information systems efficiently and accurately. QR Code has advantages in the form of relatively large data storage capacity, high access speed, and readability from various directions, so it is widely used as a medium for identification and information communication in various industrial sectors¹⁸. The application of QR Codes outside the fashion field has been widely used in customer administration and product management systems, especially as a data storage medium on labels or packaging to facilitate tracking and management of information¹⁹. QR Code is also used in the garment and manufacturing industry as a means of material marking, production process control, and textile waste management, because it is able to improve the efficiency of recording and information accuracy at each stage of production²⁰. The various forms of QR Code implementation show that QR Code has great potential as a link between physical products and informative digital narratives, so it is relevant to be developed as an identity

¹⁴ Saviola, Putratama, and Febriansyah, "Crop Top Dressing Style Among University of Jember Students for Impression Management in a Review of Erving Goffman's Dramaturgy Theory."

¹⁵ Yan Yan Sunarya Nafisa Aninda, "The Cycle of Fashion Trends on Social Media (Case Study of Fabric Trends on Instagram of Nusantara Teenagers)," *Art & Design* 6 (2023): 1–20, <https://doi.org/10.25105/jsrr.v6i1.16961>.

¹⁶ Dinar Octa Pratiwi and Sari Yuningsih, "Designing Ready-to-Wear Clothing Using Embroidery Techniques with Inspiration from Spotted Thread Motifs," *Fashion* 4, no. 2 (2022), <https://doi.org/10.37715/moda.v4i2.3161>.

¹⁷ Yetti Yunianti and Anisa Ulya Darajat, "The Utilization of QR-Codes for Digital Information Access to the Ruwa Jurai Museum Lampung Collection" 8, no. 3 (2024): 409–15.

¹⁸ Ginni Shokeen, Shubneet Aggarwal, and Manjot Kaur Bhatia, "QR Code Analysis," *International Journal for Research in Applied Science & Engineering Technology* 45, no. December (2022).

¹⁹ Soma Setiawan Ponco Nugroho et al., "Implementation of QR Code for Production Process Monitoring for Consumers in the Screen Printing Business," *Journal of Digital Business and Information Systems*, 2022, 12–17.

²⁰ Imranul Islam et al., "Innovative Solutions for Sustainable Fashion: QR Code - Driven Pre - Consumer Waste Sorting in Garment Manufacturing," *Materials Circular Economy* 7, no. 49 (2025): 1–14.

media for ready-to-wear fashion products.

QR Codes on fashion function as product information searches to be more practical and efficient because customers no longer have to manually access the internet by typing the website address, but simply scan the QR Code to obtain product information²¹. The integration of QR Codes in *fashion* is part of the industry's transformation towards *digital fashion*, where fashion acts as a medium of communication between designers, products, and consumers²². Explanations of the philosophy, theme of the collection, and design concepts are still conveyed through separate media such as catalogs, research reports, or oral explanations²³.

The application of QR Code with embroidery techniques presents an integration between decorative textile decorative techniques with digital technology that functions as access to information, so that fashion not only conveys identity through visual displays, but also through conceptual narratives that are accessed directly by users²⁴. The integration of digital technology in fashion, including the use of QR Codes, is able to expand *the function* of fashion from just an aesthetic product to a medium for conveying information and user experience²⁵. The use of this technology in *fashion* still tends to focus on technical and commercial aspects, so the potential of QR Code as a narrative and conceptual medium has not been utilized optimally. This condition shows a research gap, where QR Codes in *fashion* have been more widely used for the needs of product information, promotion, authentication, and interactive experiences, but are very rarely used as narrative media that systematically explain the fashion theme, the meaning of naming, the design philosophy, and the philosophy of batik used. The use of QR Code as a fashion identity that is able to store and convey philosophical explanations directly through *ready-to-wear clothing* consisting of crop top shirts and cargo pants. In line with these innovations, this study is directed to analyze the feasibility of QR Code-based *ready-to-wear* clothing by reviewing various aspects of design, size, aesthetics, sewing techniques, fashion performance, and specialties, to ensure that the integration of digital technology in fashion still meets the expected functional and visual standards.

Design indicators are used to assess the quality of color design in fashion that matches the theme, body shape, silhouette shape, and fashion center of attention that is clear and attractive without disturbing the overall design²⁶. The size indicator includes the size of the circumference and length, the balance of size, the determination of the pattern, and the fall of the fabric that determines the suitability of the clothes when ²⁷worn. The sewing technique indicator assesses the neatness of the seams, finishing, joint strength, decorative techniques, and zipper installation as a reflection of the quality of construction and the durability of the garment²⁸. Meanwhile, aesthetic indicators are used to assess the harmonious unity of design elements, visual balance, suitability of material and decorative textures, combinations of details and ornaments, and visual attractiveness of fashion

²¹ Annisa Nurul Puteri et al., "QRCode Integrated E-Catalog Information System Based on Website for Furniture Product Marketing," *Journal of Minfo Polgan* 13, no. 1 (February 5, 2024): 22–32, <https://doi.org/10.33395/jmp.v13i1.13462>.

²² Bogdan Protsyk Mariia Vorobchuk, Kalina Pashkevych, Olga Yezhova, "QR Code Design: From Digital Graphics to Environmental, Product and Fashion Design" 15, no. 2 (2024): 51–57.

²³ M Ridho Haries Hidayat et al., "UI QR Code Design as a Product Catalog Digitization Solution to Improve SME Marketing," *JMH: Journal of Serving from the Heart* 4, no. 1 (2025): 1–8.

²⁴ Nashwa Mostafa Hafez Bashan, Sherif Abd Elaziz Mustafa, Shereen Sayed Mohamed, "The Aesthetical Impacts of Quick Response (QR) Codes in Apparel Design to Revitalize Handcrafts," *International Design Journal* 15, no. 1 (2025).

²⁵ Neny Novitasari and Sita Nurmasitah, "The Feasibility of 'Scanara' Ready-to-Wear Clothing with QR Code Technology," *Journal of Creativity Student* 8, no. 2 (2025): 228–35.

²⁶ Putu Agus Mayuni Reni Anggraini, Ni Ketut Widiartini, "Development of Children's Party Fashion Decoration with Patchwork Fabric Recycle," *Family Welfare Education* 13, no. November (2022): 139–49.

²⁷ Sri Wening Lu'lul Rif'at Mahbubah, "The Importance of Product Quality to Support the Interest in Repurchasing Muslim Ready-to-Wear Clothing by Barokah Putra Collection Tegal Consumers," *Proceedings of Fashion Cooking Engineering Education* 1, no. 17 (2022).

²⁸ Made Diah Angendari Putu Juli Indah Purnami, I Gede Sudirtha, "The Development of Party Clothing with the Source of the Tradition Idea of Aci Tabuh Rah Pengangon," *Family Welfare Education* 14 (2023): 29–38.

related to the perception of product beauty²⁹. Furthermore, the fashion performance indicator assesses the aspects of fit and proportion, shape stability, ease of use, suitability of the wearer's character and theme, as well as a *sporty* casual impression that shows the function of the fashion when used³⁰. Meanwhile, the speciality indicator assesses the creativity of ideas, form innovation, material exploration, harmony of exploration results, and the strength of design identity as added value and uniqueness of fashion products³¹. The emphasis on this aspect becomes relevant in the context of the development of *ready-to-wear* clothing that prioritizes not only function, but also visual and conceptual differentiation.

Based on the description above, this study focuses on *ready-to-wear* clothing based on embroidery QR Code because it has the characteristics of ready-to-wear clothing, is produced in standard sizes, and is easy to apply in life. These characteristics make *ready-to-wear* relevant to consumer needs that prioritize efficiency, practicality, and aesthetic value³². This study was limited to the feasibility analysis of *ready-to-wear* clothing consisting of crop top shirts with QR Code outer and cargo pants.

METHOD

This research method uses a quantitative descriptive approach that aims to assess the feasibility of *ready-to-wear clothing*. This approach was chosen because the research focuses on data collection and numerical data analysis to objectively describe the feasibility of the product against the object being studied. The subject of this study involves 5 expert panelists who have competence in the field of *fashion* and fashion design, as well as 20 trained panelists who understand the characteristics of *ready-to-wear clothing*, namely students who have completed the Women's Fashion and Adi Busana Production course, so that they are considered to have adequate understanding and skills in assessing the feasibility of the produced clothing.

Data collection was carried out using observation sheets filled out by expert panelists and trained panelists. Each panelist was asked to directly observe the *ready-to-wear clothing* that was the object of the research, then give an assessment on each item according to the available assessment scale. The fashion feasibility research instrument was systematically compiled based on six main indicators, which included design, size, sewing technique, aesthetics, fashion performance, and specialties.

Each indicator in the research instrument has 5 statements, so the entire instrument consists of 30 items. Each statement item is assessed using six assessment rubrics that represent various aspects of fashion eligibility, so that one item is not assessed individually, but is assessed through several interrelated aspects, so that the results of the assessment obtained can reflect the feasibility of *ready-to-wear* clothing more objectively. In detail, the description of the instruments used in this study is summarized in the grid table as follows:

²⁹ Masduki Asbari Nada Dwi Putri, Dewiana Novitasari, Teguh Yuwono, "The Influence of Product Quality and Service Quality on Customer Satisfaction," *Unipem* 15, no. 1 (2021): 30–47.

³⁰ Ni Luh Supraeni and I Wayan Suwendra, "The Influence of Price, Product Quality and Trust on Online Fashion Purchase Decisions in Economics Education Students, Ganesha Education University," *Journal of Economic Education* 11, no. 2 (2024): 279–87.

³¹ Masduki Asbari Nada Dwi Putri, Dewiana Novitasari, Teguh Yuwono, "The Influence of Product Quality and Service Quality on Customer Satisfaction," *Unipem* 15, no. 1 (2021): 30–47.

³² Siti Audinna Kharimah and Faradillah Nursari, "Women's Ready-to-Wear Fashion Design in Japanese Streetstyle Using the Zero Waste Method," *Journal of Textile and Fashion Craft* 6, no. 2 (2019): 2250–57.

| Kelayakan Busana Pesta | Indikator | Sub Indikator | No Butir |
|---|---|--|----------|
| Desain, teknik, teknik jahit, keseimbangan bentuk, hasil jadi busana (Anggraini et al., 2022) | Desain (Anggraini et al., 2022; Juli et al., 2023; Marbubah & Wening, 2022; Supraeni & Suwendra, 2024; Vera et al., 2021) | 1. Warna 2. Garis 3. Bentuk / Siluet 4. Proporsi 5. pusin perhatian | 1 - 5 |
| Desain, bahan busana, standar ukuran busana, standar jahitan, label (Marbubah & Wening, 2022) | Ukuran (Marbubah & Wening, 2022) | 1. Ketepatan ukuran lingkar 2. Ketepatan ukuran panjang 3. Keseimbangan ukuran 4. Ketepatan pola 5. Jatuh/ kelangsingan kain | 6 - 10 |
| Desain, Tekstur dan warna, bentuk, tampilan pendukung, teknik jahit, hasil akhir (Juli et al., 2023) | Teknik Jahit (Anggraini et al., 2022; Juli et al., 2023; Marbubah & Wening, 2022; Vera et al., 2021) | 1. Kerapian jahitan 2. Finishing 3. Kekuatan sambungan 4. Teknik hias 5. Pemasangan ritsleting | 11 – 15 |
| Desain, Hasil jadi, teknik dan warna, teknik jahit, tampilan pendukung(Vera et al., 2021) | Estetika (Putri et al., 2021) | 1. Kesatuhan elemen desain 2. Keseimbangan visual 3. Kesesuaian tekstur dan Hiasan 4. Kombinasi detail dan ornament 5. Daya tarik visual | 16 – 20 |
| fitur produk, kualitas kesesuaian, ketahanan dan desain (Supraeni & Suwendra, 2024) | Performa (Putri) | 1. Fit dan proporsi 2. Stabilitas bentuk 3. Kemudahan pemakaian 4. Kesesuaian karakter dan tema 5. Kesan elegan dan profesional | 21 - 25 |
| Performa, keistimewaan tambahan, kehandalan, konformitas, daya tahan, kemampuan pelayanan, estetika, kualitas yang dipersepsikan (Putri et al., 2021) | Keistimewaan tambahan (Putri et al., 2021) | 1. Kreativitas ide 2. Inovasi bentuk 3. Eksplorasi bahan 4. Harmoni hasil eksplorasi 5. Identitas desain | 25-30 |

Figure 1. Fashion Eligibility Grid

Before the instrument is used in the collection of research data, validity and reliability estimation are first carried out to ensure the feasibility of the appropriate measuring instrument. The validity used in this study is to prove validity.

Validity verification is carried out using content validity involving 7 experts, using *Aiken's V*, with the formula:

$$V = \frac{\sum s}{n(c - 1)}$$

Sources: Kusumastuti, et al (2020:82)

Description:

V = Aiken validity index

S = r - lo

r = Highest score on the rating scale

lo = Highest score on the rating scale

n = Number of validators

The results of the content validity showed that the fashion feasibility instrument had a *Aiken's V* value of 0.75 to 0.93, with a value of 0.82. The interpretation criteria used in this study determined that out of 30 items with an *Aiken's V* value of ≥ 0.75 was declared valid³³. This value places most items in the category of medium validity so that it is very high, which indicates that the instrument for assessing the feasibility of *ready-to-wear clothing* based on embroidery QR Code is declared valid in terms of content and suitable for use in the research.

The estimation of the reliability of the instrument was analyzed using the *Intraclass Correlation Coefficient* (ICC). Reliability estimation was carried out to determine the level of consistency of assessment between raters on all instrument items. The results of reliability calculations are presented in Table 1.

Table 1. Intraclass Correlation Coefficient

| Intraclass Correlation ^b | Intraclass Correlation Coefficient | | | F Test with True Value o Value df1 df2 Sig | |
|-------------------------------------|------------------------------------|-------------|--|--|--|
| | 95% Confidence Interval | | F Test with True Value o Value df1 df2 Sig | | |
| | Lower Bound | Upper Bound | | | |

³³ Wulansari Prasetyaningtyas and Sri Wening, "Needs Analysis to Develop a Practice Assessment Instrument for Learning Process During Covid-19 Pandemic," ATLANTIS PRESS 640, no. Iccie (2021): 307-11.

| | | | | | | | |
|------------------|-------|------|------|--------|----|-----|------|
| Single Measures | .926a | .835 | .948 | 45.365 | 29 | 174 | .000 |
| Average Measures | .978c | .956 | .972 | 45.365 | 29 | 174 | .000 |

The stability of the instrument was calculated using *the Intraclass Correlation Coefficient* (ICC), with the results estimated in Table 1. The value on the ICC *Average Measure* is 0.978, with a significance value level of 0.000, which is referred to in the reliability category is very high, while the ICC *Single Measure* value of 0.926 also shows an excellent level of reliability. Interpretation based on the analysis of the instruments used to analyze the suitability of the fashion showed that the ICC value was in the range of 0.75 to 1.00, which reflects an excellent level of estimation³⁴. These results show that the assessment instrument has a strong internal consistency and can be trusted to measure the feasibility of *ready-to-wear clothing*.

Data analysis was carried out using descriptive statistics by calculating the average score and percentage of the eligibility level for each aspect of the assessment. The maximum score was obtained from the result of multiplying the number of statement items, the highest score on the assessment scale, and the number of assessments in each group of panelists. The resulting eligibility percentage is then interpreted into assessment categories using the following proportion formula:

$$P = \frac{NP}{N}$$

Source: Sumaryanta (2021:21)

Description:

P = Proportion or percentage of eligibility

Np = Total score obtained

N = Maximum number of scores

The proportion of scores obtained was then converted into a percentage and grouped into five eligibility categories, namely Very Feasible, Feasible, Quite Feasible, Less Feasible, and Very Unfeasible. The determination of the percentage limit in each category is arranged based on the range of 20% to 100% which is divided proportionally. The classification is then presented in Table 2 as a reference in interpreting the results of the feasibility assessment of ready-to-wear clothing.

Table 2. Product Eligibility Categories

| Percentage | Categories |
|------------|-----------------|
| 85% - 100% | Highly Worth It |
| 69% - 84% | Worthy |
| 53% - 68% | Quite Decent |
| 37% - 52% | Less Worthy |
| 20% - 36% | Not Eligible |

RESULTS AND DISCUSSION

The presentation of results and discussions in this study are systematically arranged to answer the research objectives that have been formulated in the introduction and are in line with the research methods used. The main focus of this study is to analyze the feasibility of embroidery QR Code-based *ready-to-wear* fashion products through quantitative descriptive assessments, so that the results obtained are able to objectively describe product quality based on the indicators that have been set.

Table 3. Fashion Eligibility Categories

| Indicator | Average (%) |
|---------------------|-------------|
| Design | 15,22 |
| Size | 15,55 |
| Aesthetics | 15,85 |
| Sewing Techniques | 15,58 |
| Fashion Performance | 15,60 |
| Privileges | 15,88 |

³⁴ Wulansari Prasetyaningtyas, Widihastuti Widihastuti, and Edi Istiyono, *Development of Learning Outcomes Assessment Instruments for Fashion Technology Courses* (Atlantis Press SARL, 2024), <https://doi.org/10.2991/978-2-38476-198-2>.

| Total | 93,68 |
|-------|-------|
| | |

Figure 2. Ready-to-wear clothing

Design

The results of the design indicator analysis showed that the design indicator obtained an overall percentage of 15.22%. Reviewed from the aspect of color and design line processing in fashion *Ready to wear* shows a strong compatibility with the design concept and character of the user aged 20-25 years. Color combinations *Light Grey* and *Navy* forming a modern impression, *Casual*, and *Sporty* without creating an excessive or childish impression. The controlled use of two dominant colors results in stable visual harmony, while the black QR Code embroidery accents serve as a contrasting element that clarifies the focal point of the design. The application of vertical lines is able to create the illusion of a taller and slimmer body, while horizontal and diagonal lines are used proportionally to enrich the visuals without disturbing the balance of the design, so that color harmony and proper line processing play an important role in building visual character and the perception of modernity in fashion *Ready to wear*³⁵.

In terms of shape and silhouette, fashion *Ready to wear* apply an H silhouette that gives a bold, modern, and neutral impression in accordance with the fashion concept. The shape of the sleeves, pants, and bottom of the garment is designed according to the function and initial design, which overall results in a harmonious and proportional silhouette look. These results show that the H silhouette is effectively used in contemporary fashion design because it is able to integrate aspects of function, comfort, and aesthetics in a balanced manner³⁶.

The aspect of proportions and the center of attention of fashion shows a harmonious visual balance between the top and bottom, length and width, as well as the relationship between colors, materials, and shapes. The length of the dress, sleeves, and pants is adjusted to the height of the wearer's body so as to create stable and weightless proportions on one side. Ornamental accents are applied in a limited and controlled manner so as not to disturb the overall design balance. The center of attention in the form of QR Code embroidery is placed in a strategic era on the back of the fashion with proportional size and position, so that it is able to attract attention without competing with other design elements. Details *Focal Point* Neat and precise reinforces the character of the fashion while improving the quality of the visual aesthetic. Arrangement *Focal Point* Proportionally and contextually designed can reinforce the visual identity of fashion without compromising the unity of the design composition³⁷.

³⁵ Dini Yanuarmi Salsabila Sephiani, "Contemporary Fashion with Japanese Smock Techniques," *Journal of Fine Arts & Design* 03, no. 01 (2025): 207–14, <https://doi.org/10.61930/visart.v3i1.1197>.

³⁶ Raudhatul Salma, Novina Yeni Fatrina, and Nofi Rahmania, "Batobo Traditional Clothing as an Inspiration for Art of Beat Style," *Journal of Fashion Design* 4, no. 2 (2025).

³⁷ Muhammad Hafiz Wiranata and Arwin Ramli, "Literature Review on Visual Branding in Fashion Teachwear for Gen Z Consumers," *Journal of Rupa Matra* 03, no. 02 (2025): 158–69, <https://doi.org/10.62375/jdkv.v3i2.535>.



Figure 3. Ready-to-wear *Fashion Design*

Size

The size indicator shows that the size indicator obtained an overall percentage of 15.55%, which indicates that the aspect of the size in the evaluation of fashion products has been well met according to the assessment standards. The aspect of conformity of body circumference size shows that the fashion has a good level of compatibility with the wearer's body shape. The chest, waist, and pelvis are designed according to the model's body size so that the clothes do not look too loose or tight on the horizontal. The position of the waist circumference is at the appropriate point, while the pelvic circumference appears proportional and in harmony with the shape of the wearer's body. The seams on the sides of the body appear straight and parallel to the body line, so that the entire outfit looks fit and stable from top to bottom. The accuracy of the size of the body circumference has a direct effect on the comfort, aesthetics, and perception of the quality of ready-to-wear clothing³⁸.

Judging from the length of the clothing and the balance of the right and left parts, the results show that the vertical dimensions of the clothing are in accordance with the design and the proportion of the wearer's body height. The length of the batik shirt is designed to the waist limit according to the concept, while the length of the pants reaches the floor and is left to drag according to the planned design. The length of the right and left arms seems balanced and the length of the front and back fashion sides. The right and left shoulder lines are parallel without any difference in height, and the cuts and side ridges are made symmetrical. The position of details such as pockets and strap trim are also visually aligned, with the center front and *center back* being right on the body shaft. This condition shows that the balance of size contributes to the impression of neatness and precision of the balance of right and left is the main indicator of the quality of fashion construction³⁹.

The cut aspect and the pattern of the bottom of the dress show that the pattern is designed to follow the contours of the body naturally without causing wrinkles or excessive pull. The cut lines on the chest, waist, and pelvis area seem to be in harmony with the shape of the body, and are arranged according to the direction of the fabric fibers so that the clothes fall well. The bottom of the fabric shows a straight and stable fall of the fabric, following the direction of gravity according to the character of the material. The pleats on *the accordion pocket* fall parallel to the design and do not interfere with the overall silhouette of the outfit, while the seam lines appear parallel and flat on all sides. This neat fabric fall strengthens the fashion silhouette according to the design concept, through the determination of the pattern cut and the quality of the fabric drapery plays an important role in

³⁸ * and Thanh-Tuan Dang Chia-Nan Wang, Phuong-Thuy Thi Nguyen, Yen-Hui Wang, "A Study of Performance Evaluation for Textile and Garment Enterprises," *MDPI* 10 (2022): 1–24.

³⁹ H. Hinčica, V., Svobodová, A., Řezanková, "Consumer Perception of Quality of Clothing Products: A Lesson for the Business Sector Arising from Czech Evidence," *CEB* 11 (2022): 1–21.

shaping the silhouette and increasing the aesthetic value and professionalism of the fashion⁴⁰.

Aesthetics

The aesthetic indicator obtained a percentage of 15.85%. The unanimous aspect of design elements and visual balance in fashion shows a good level of harmony between colors, shapes, and textures. All visual elements support each other without presenting excessive contrast, so that no design element seems to stand or be cut off from the overall composition. The transitions between the pieces of the garment, both from top to bottom and from the center to the edges, look smooth and visually blended. The combination of materials with matte character and a hint of shine is applied in a balanced manner, while the motifs and textures of the materials are adjusted to the shape of the fashion so that they do not dominate the look. The visual balance of right and left seems to be maintained through the arrangement of colors, motifs, and details that are symmetrical and asymmetrical while still using the center line of the body as a reference. This balance results in a stable, neat fashion look, and reflects the professionalism of the work, so that the unity of design elements and visual balance is the main factor in building aesthetic quality and perception of the beauty of modern fashion⁴¹.

Judging from the aspect of material texture and the application of decoration, fashion shows the suitability between the character of the material and the theme carried. The use of *cotton strech* fabric gives a structured stiff impression that supports a *sporty casual look*. QR Code embroidery embellishments blend with the main material both in terms of texture and shine, so it doesn't look foreign or separate from the main design.

The aspect of detail, ornamentation, and visual appeal shows that the fashion has a prominent aesthetic power according to the specified theme. QR Code embroidery details and ornaments are placed in strategic areas with a size and amount that is balanced against the scale of the clothing, so that it does not seem excessive or too minimal. The color of the ornament is harmonious with the main color of the clothing, and the ornament material has a texture match with the main material. The installation of ornaments is carried out neatly, precisely, and controlled, so that it does not cover the beauty of the basic shape of the clothing. From a normal viewing distance (3-5 meters), fashion is able to attract positive attention through the combination of colors, shapes, and unique elements of QR Code as a characteristic of the work. The proportion between details and blank fields is well maintained, resulting in an impression of elegance, classy, *sporty, casual* and in accordance with character. The presence of unique elements that are harmoniously integrated can enhance the visual appeal and aesthetic identity of the fashion without disturbing the unity of the design composition⁴².

Sewing Techniques

The sewing technique indicator obtained a percentage of 15.58%, which indicates that the aspects of sewing skills applied in the product have met the assessment feasibility standards. The quality aspects of the main seam and the inner finish show that the garment has a high level of neatness and precision. The seam spacing looks consistent and conforms to design standards, resulting in a flat and stable sewing line. The selection of thread color is adjusted to the color of the fabric, so that it does not stand out beyond the seam limits. There were no loose threads, seam jumps, or folds on the kampuh, and the kampuh seemed to stick perfectly without waves. *Finishing* the edges of the fabric is done according to the type of material, with the overhead technique on cotton fabric, so that the edges of the fabric are not frayed and remain neat. *The inner finishing* seams are invisible from the outside, symmetrical, and harmonious with the color of the material, so that the interior of the fashion looks clean and professional. Consistency of seams and finishing quality are the main

⁴⁰ Revan Aprianto, Vivi Radiona Sofyani Putri, and Suryawati Suryawati, "Aesthetic Assessment of Denim-Made Party Clothing with Draping Techniques," *Practice of Fashion and Textile Education Journal* 3, no. 2 (2023): 87–98, <https://doi.org/10.21009/pftej.v3i2.24823>.

⁴¹ Dinar Octa Pratiwi and Sari Yuningsih, "Designing Ready-to-Wear Clothing Using Embroidery Techniques with Inspiration from Spotted Thread Motifs," *Fashion* 4, no. 2 (2022), <https://doi.org/10.37715/moda.v4i2.3161>.

⁴² Eunju Ko et al., "Clothing Design Factors, Aesthetic Experience, and Preference : Additional Insights from Neuromarketing in Civil Defense Clothing," *Journal of Global Fashion Marketing* 16, no. 2 (2025): 257–77, <https://doi.org/10.1080/20932685.2024.2403378>.

indicators of technical quality and perception of fashion professionalism⁴³.

Judging from the precision of the pattern connections, the results show that each connection between the pieces of clothing meets exactly at the design point without shifting. The right and left lines appear to be parallel, both at the front and back, creating a good visual balance. In critical areas such as shoulders, waist, and armpits, the joints look smooth and even without any pull. The precision of this joint indicates precise and controlled pattern planning and sewing processes. The accuracy of pattern connections and the suitability of the direction of fabric fibers play an important role in maintaining the shape, comfort, and visual quality of ready-to-wear clothing⁴⁴.

Fashion Ready to wear In this study, it was declared free from technical defects such as needle marks, stains, thread residues, and fabric damage due to the sewing process. The outer surface of the garment appears clean and smooth to the touch, indicating the application of good quality control. Quality Sewing techniques and final defect control have a significant effect on the perception of quality and feasibility of fashion as a product *fashion* Professional⁴⁵.

Fashion Performance

The fashion performance indicator shows that this indicator obtained a percentage of 15.60%. The suitability of proportions and stability of the shape of the clothes when worn shows that the clothes appear in harmony with the model's body shape. The clothes do not appear too loose or tight in the chest, waist, and pelvis area, so that the resulting silhouette looks balanced and harmonious. The length of the sleeves as well as the length of the pants correspond to the proportions of the height of the model's body, supporting a proportionate visual appearance. The existence of *interlining* and furing functions optimally in maintaining the structure and stability of the fashion shape throughout the wearing and presentation sessions. Shape stability and proportional suitability are important indicators of fashion performance in supporting comfort and visual quality⁴⁶.

Judging from the ease of use and function of the opening mechanism, ready-to-wear clothing shows good performance in terms of ergonomics. The direction and placement of the openings in the form of zippers and buttons are easily accessible to the wearer, so that the process of putting on and taking off clothes can be done without excessive assistance. The opening mechanism works well, does not get stuck, and does not alter or damage the overall shape of the garment when used. The placement of the opening also does not interfere with the aesthetics of the fashion, as it is integrated with the pieces and fashion lines. After wearing and buttoning, the clothes still look neat and stable.

The visual character, professional impression and suitability with the theme show that the fashion is able to represent the character of the young adult wearer consistently. The design, shape selection, and materials support a *modern sporty casual* image and in accordance with the context of semi-formal events during the day. Fashion gives a sense of confidence in the model without lowering personal image, and still meets the norms of modesty through proportional cuts and lengths. The colors, materials, and details do not create an excessive impression, so it still looks elegant, and neat when demonstrated. Good fashion performance is reflected in the ability of design to support the wearer's character, appearance professionalism, and comfort when used in real activities⁴⁷.

⁴³ Contardo Alfabian Kevasoka Reski Alya Pradifta, Andhi Sukma Hanafi, Wawan Dwi Novianto, Tuti Purwanti Tuwarno, "Comparison of Characteristics and Quality of Thread Sewing of Brands X and Y on Woven Fabric Pants," *Journal of Innovation Research and Development Results* 5, no. 2 (2025): 329–41.

⁴⁴ Siti Mariah Zianasti Krisjayusman, "Comparison of Fitting Factor Practical Construction Patterns with SO-EN Patterns in Women's Clothing Blazer Models," *Food and Beverage Education* 19, no. 1 (2024): 1–10.

⁴⁵ Hari Wahyuni Kamilatul Hikmah, Dwita Laksmita, "Quality Control Analysis with Six Sigma Method in an Effort to Reduce the Defect Level of Abaya Production," *Management and Business* 3, no. 1 (2025): 85–96.

⁴⁶ Sai Krishnan, Arumbakkam Narasimhan, and Palanisamy Kanakaraj, "Virtual Fit Evaluation For Optimization of Garment Component's Parameters OF GARMENT COMPONENT ' S PARAMETERS," *Journal Research* 31 (2024): 269–76.

⁴⁷ Adhi Kusumastuti Aliyya Raharjanti, "The Creation of the ' Sirena Varunya ' in Presenting the Transformable Fashion Concept," *Journal of Creativity Student* 8, no. 2 (2025): 255–72.

Privileges

The speciality indicator obtained a percentage of 15.88%, which indicates that the fashion products developed have strong distinguishing aspects compared to other *ready-to-wear clothing*. The results of the assessment show that the developed fashion has a strong level of speciality through the presence of creative ideas that are original and different from the general fashion works. This uniqueness is evident in the integration of batik with QR Code technology as a conceptual and visual element, which is not only decorative but also contains informative value. The resulting design does not resemble existing popular works, but rather presents new ideas that still maintain a balance between function, comfort and fashion aesthetics. These innovative elements blend harmoniously with the main structure of the fashion so that it produces a fresh, original impression, and is able to attract positive attention without being overly impressive. The uniqueness of fashion is not only determined by the visual appearance alone, but also by the strength of the concept and the novelty of the ideas presented consistently⁴⁸.

Viewed from the aspects of innovation in form, detail, and structure, *ready-to-wear clothing* shows a high ability to explore design through the application of precision-designed construction and detail. The use of embroidered QR Codes is the main distinguishing feature that reinforces the value of innovation. The exploration of materials through the combination of batik and *cotton stretch*, as well as the use of supporting accessories such as slider rings or buckles, results in unique textures and visual characters.

The speciality of *ready-to-wear fashion* is further strengthened through the creation of *signature styles* that have the potential to become a designer's identity. The unity between ideas, color selection, material exploration, and the application of QR Code details forms a consistent and easily recognizable design character. The characteristic not only follows the trend, but also has strong marketability potential because its design identity is clear. This is in line with innovations that are conceptually and functionally integrated and proven to be able to increase the unique value of *fashion products* and strengthen the identity of designers in the midst of creative industry competition⁴⁹.

Overall, the results of the study show that the highest percentage in the product speciality indicator with a value of 15.88% is due to the embroidery QR Code innovation that provides real added value to ready-to-wear clothing, not only as a visual element, but also as a medium of digital identity and narrative. This innovation expands the function of fashion from just a physical product to an interactive media that is able to convey information, design stories and product identity, so that it is considered very relevant to the development of technology-based fashion and user experience⁵⁰. This uniqueness makes the product have a strong difference from other *ready-to-wear* clothing, so it gets a high rating.

The lowest percentage in the design indicator with a value of 15.22% occurred because fashion design was more directed towards the principle of dressability and practical function according to *the character of ready to wear*. Nevertheless, the six indicators support each other in showing the success of the design in terms of visuality, uniqueness, functionality, comfort and feasibility of construction. So that *the QR Code-based ready-to-wear* clothing developed not only meets aesthetic aspects, but also reflects the value of innovation and deserves to be published as an innovative and valuable fashion work.

CONCLUSION

Based on the results of the assessment, the product developed was declared very feasible based on the assessment of 5 expert panelists and 20 trained panelists with a total feasibility percentage of 93.68%. The high percentages in both groups of panelists indicated that the product met the quality standards reviewed from all assessment indicators.

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